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A cross-national study of work engagement as a mediator between job resources and
proactive behaviour

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Abstract

This study investigates the mediating role of work engagement (i.e., vigor and dedication) among job resources (i.e., job control, feedback and variety) and proactive behavior at work. This mediating role was investigated, using Structural Equation Modeling in two independent samples from Spain (n= 386 technology employees) and The Netherlands (n= 338 telecom managers). Results in both samples confirmed that work engagement fully mediates the impact of job resources on proactive behavior. Subsequent multi-group analyses revealed that the strengths of the structural paths of the mediation model were invariant across both national samples, underscoring the cross-national validity of the model

Key words: Job resources work engagement, proactive behaviour, cross-national study.

Work engagement as a mediator between job resources and proactive behaviour:

A cross-national study

The current labour market is characterised by flexibility, rapid innovation and continuous changes, and organizations are therefore looking for specific competencies and behaviours of employees that facilitate adaptation to these new labour requirements.

Proactive behavior is one of these specific behaviours and it is defined as ‘(...) taking initiative in improving current circumstances or creating new ones (...). Employees can engage in proactive activities as part of their in-role behavior in which they fulfil basic job requirement (...). Extra-role behaviors can also be proactive, such as efforts to redefine one’s role in the organization (Crant, 2000; p. 436).

Although there is reasonable agreement about the salience of active rather than passive behaviors in proactive work behavior (Ashford & Cummings, 1983, 1985; Bateman & Crant, 1993), there is no agreement on the operationalization of proactive behavior.

Some researchers consider proactivity as a personal disposition akin to personality (Bateman & Crant, 1993; Parker, 2000), whereas others focus on its contextual factors, considering proactive behavior as a function of situational cues (Morrison & Phelps, 1999).

This paper follows the latter view and considers proactive behavior in terms of personal initiative (Frese, Fay, Hilburger, Leg & Tag, 1997), which is a behavioral pattern whereby the individual takes an active self-starting approach to work, thereby going beyond formal job requirements. Proactive employees show personal initiative and are action-directed, goal-directed, seek new challenges, and are persistent in the face of obstacles.

The aim of the current study is to show that job resources (i.e. situational cues) have an indirect impact on proactivity through work engagement, which is considered to be

an indicator of intrinsic work motivation. Hence, our study seeks to uncover the (intrinsic) motivational underpinnings of proactive employee behaviors.

Job resources and motivation

According to Crant's (2000) integrative framework of the antecedents and consequences of proactive behavior, two broad categories of antecedents can be identified: contextual (i.e., job resources such as job control, feedback, and variety) and individual factors (i.e., intrinsic motivation). It appears that both factors are related since challenging and enriched jobs, in which employees can draw upon many resources, generate high levels of intrinsic motivation, which, *in turn* spurs proactive work behavior (Parker, 2000). In a similar vein, Frese and Fay (2001) present a comprehensive model of antecedents and consequences of personal initiative in which – among others – job control, job complexity, and support are considered to be 'environmental supports' that enhance employee's levels of personal initiative. They argue that these environmental supports, along with personality factors such as achievement motivation and action orientation, positively influence levels of personal initiative through increased motivation and skill development.

Finally, on a more general level it was found that job resources are related to intrinsic work motivation (Houkes, Janssen, de Jonge & Nijhuis, 2001; Janssen, de Jonge & Bakker, 1999). In a similar vein, Demerouti, Bakker, Nachreiner & Schaufeli (2001) successfully testing the so-called Job Demand-Resources (JD-R) model in a German sample. The JD-R model posits that job demands (i.e., physical demands, time pressure, shift work) are associated with exhaustion, whereas lacking job resources (i.e., performance feedback, job control, participation in decision making, social support) are associated with disengagement. Recently, Schaufeli and Bakker (2004) also tested the JD-R model in The

Netherlands but instead of disengagement as a dimension of burnout, they included ‘work engagement’ (see below). Their results, that were replicated in a Finnish sample (Hakanen, Bakker & Schaufeli, 2006), showed that the availability of job resources functions as an antecedent of a motivational process that – via work engagement – results in greater organizational commitment. Hence, the absence of job resources fosters disengagement, whereas the presence of job resources stimulates personal development and increases work engagement. Furthermore, recent research shows that engagement has a positive impact on performance in different contexts such as: academic performance (Schaufeli, Martínez, Marqués-Pinto, Salanova & Bakker, 2002); group performance (Salanova, Llorens, Cifre, Martínez & Schaufeli, 2003) and quality of service of customer’s contact employees (Salanova, Agut & Peiró, 2005).

Work engagement as intrinsic motivation

The fact that job resources have motivational potential signifies that work fulfills basic human needs for employees, such as the needs for autonomy (deCharms, 1968), competence (White, 1959) and relatedness (Baumeister & Leary, 1995). According to self-determination theory (Deci & Ryan, 1985) work contexts that support psychological autonomy, competence and relatedness enhance intrinsic motivation and increase well-being (Ryan & Frederick, 1997). For instance, proper feedback fosters learning thereby increasing job competence, whereas decision latitude satisfies the need for autonomy. This intrinsic motivational potential of job resources is also recognized by more traditional theories, such as Job Characteristics Theory (JCT; Hackman & Oldham, 1980). According to JCT, every job has a specific motivational potential that depends on the presence of five core job characteristics: skill variety, task identity, task significance, autonomy, and feedback. Furthermore, JCT hypothesizes that these job characteristics are linked – through

so-called critical psychological states – with positive outcomes such as high quality work performance, job satisfaction, and low absenteeism and turnover. On balance, previous empirical findings agree with Hackman and Oldham's model (Hackman & Oldham, 1980).

In the current study we use work engagement as an indicator of intrinsic motivation at work. Work engagement is defined as a '(...) positive, fulfilling, work-related state of mind that is characterised by vigor, dedication, and absorption' (Schaufeli, Salanova, González-Romá & Bakker, 2002; p.74). Rather than a momentary and specific state, such as an emotion, engagement refers to a more persistent affective-motivational state that is not focused on any particular object, event or behavior. *Vigor* is characterised by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties. *Dedication* is characterised by a sense of significance, enthusiasm, inspiration, pride, and challenge. Basically dedication refers to a particularly strong psychological identification with one's job. The final dimension of engagement, *absorption*, is characterised by being fully concentrated and engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work. However, mounting evidence suggests that absorption – which is akin to the concept of flow (Csikszentmihalyi, 1990) – should be considered a consequence of work engagement, rather than one of its components (Salanova et al., 2003). In contrast, vigor and dedication are considered the core dimensions of engagement that are the direct opposites of the burnout dimensions, exhaustion and cynicism respectively, that constitute the 'core of burnout' (Green, Walkey & Taylor, 1991, p. 463).

Therefore, in the present study, vigor and dedication are used as indicators of work engagement. This agrees with the way that motivation is usually considered, namely as a

psychological process that includes activation or energy, effort or persistence, as well as the direction towards a goal (Campbell & Pritchard 1976;; Katzell & Thompson, 1990; Locke & Latham, 1991; Naylor, Pritchard & Ilgen, 1980). Since vigor reflects activation and energy, effort and persistence of the motivated behavior, as well as goal-directness in terms of concentration on a specific work goal, it is considered a motivational concept. However, the concept of vigor is rather generic and may apply to intrinsically as well as extrinsically motivated behavior. The second dimension of work engagement -- dedication -- is more clearly related to the intrinsic nature of motivation as defined by Warr, Cook and Wall (1979) as the degree to which a person wants to work well in his or her job in order to achieve personal satisfaction. By definition, intrinsic motivation is concerned with the task content; with the job activity in itself, and with the fulfilment of personal needs such as autonomy or learning. In this sense, dedication refers to enthusiasm, feeling proud because of the work done, being inspired by one's job, and feeling that one's work is full of meaning and purpose. In fact, dedication refers to satisfying higher order needs such as the need for competence or the need of control (Bandura, 1986; Kanfer, 1990).

It follows from the reasoning above that work engagement covers the basic dimensions of intrinsic motivation, which ensures goal oriented behavior and persistence in attaining objectives along with high levels of activation (i.e. vigor) as well as feeling enthusiastic, identifying with and being and proud of one's job (i.e. dedication). Since work engagement refers to high levels of energy, persistence, identification and goal-directness, it can be expected that high levels of engagement increase proactive work behavior in the sense of personal initiative.

The current study

It is our intention to contribute to the ongoing discussion about the (intrinsic) motivational potential of job resources by showing that they have an indirect impact on employee proactivity through work engagement. More specifically, this paper deals with exploring the role of work engagement, as a mediating variable, between job resources such as job control, feedback, and job variety on the one hand, and proactive behavior on the other hand. These specific job resources were included because previous research (e.g., Frese, Kring, Soose & Zempel, 1996) demonstrated that these are relevant environmental supports for proactive behavior and personal initiative at work. For instance, job control stimulates initiative as it has an impact on employee's motivation to redefine their tasks in a broader way (thus including extra-role goals) and on their sense of responsibility for their job. However, previous research did not uncover the process that mediates the relationship between job resources and proactive behaviour. Our study is designed to fill this gap by assuming that work engagement as an indicator of intrinsic motivation plays a key mediation role.

Specifically, we hypothesize that (see Figure 1):

H1: Job resources are associated with high levels of work engagement will develop. That is, favourable job characteristics foster high levels of energy and persistence in the face of obstacles (i.e., vigor), as well as the fulfilment of personal needs and identification with the job (i.e. dedication)

H2: In its turn, work engagement is positively associated with proactive behaviour, thus playing a full mediating role between job resources and proactive behaviour (see Figure 1).

INSERT FIGURE 1 ABOUT HERE

We will test this mediating role of work engagement in two independent samples of employees from Spain and The Netherlands, using the same psychological constructs with slightly different measures in each sample, in order to show the robustness of the research model.

This leads to:

H3: The proposed full mediation model will be invariant across both national samples.

Method

Samples and procedure

We used two samples in order to test our hypotheses. Both samples have in common that employees are dealing with changes and innovations at work. They work in innovative and rapidly changing jobs that require continuous adaptation so that proactive behavior plays a relevant role. The first sample is composed of Spanish employees working with new Information and Communication Technologies (ITC) who have to adapt to rapid technological changes. The second sample is composed of managers from a large Dutch telecom company that was going through a process privatization so that its managers have to adapt to a highly competitive and dynamic business and consumer market. So also for them, proactive behavior is important in order to adapt successfully to their work role.

Sample 1. A questionnaire was distributed in a sample of 800 employees from public and private Spanish organizations from different occupational sectors (i.e., tile industry, public administration, and health care). A total of 624 employees returned the questionnaire (response rate = 78%), from which 524 used ICT in their jobs, and 386 used

ICTs at least 50% or more of their work time. The latter group was selected to be included in the current study.

Most employees used Enterprise Integrating Networks (EIN – 82%) such as computing tools (i.e. word and data processors) and communications tools (i.e. Internet). The remaining 18 % used Advanced Manufacturing Technology (AMT), such as Computer-Aided Design – CAD and Computer Numerical Control. These employees were working in various jobs and occupational fields, such as clerical jobs (37%), technical and support staff (30%), sales (6%), human services (8%), management (7%), laboratory settings (7%), and as operators (5%). Finally, 198 are woman (52 %) and 186 men (48 %). The mean of age was 30 years ($SD = 7.9$) ranging from 20 to 59 years.

Subjects were asked to answer a set of self-report questionnaires. Risk prevention experts or personnel from Human Resources Departments distributed the questionnaires, which were delivered in an envelope. A covering letter explained the purpose of the study, that participation was voluntary, and guaranteed confidentiality. Respondents were asked to return the completed questionnaires in a sealed envelope, either to the person who had distributed them or directly to the research team.

Sample 2. A questionnaire was distributed in a sample of 420 managers from a large Dutch telecom company. This questionnaire was part of a voluntary, bi-annual physical and psychosocial check-up program that was carried out by an Occupational Health and Safety Service. A booklet, including the scales used in the current study, was sent by surface mail to the home addresses of the managers and a total of 338 returned the booklet using a pre-stamped envelope (response rate 80%). The majority are men (91%); 94% live together with a partner; 57% hold at least a college degree; 35% completed a vocational training program, and 8% visited high school. The mean age is 43 years ($SD =$

7.9) and on the average the managers worked 18.4 years for the company (SD = 10.7).

Thus, we deal with is a typical managerial sample consisting of predominantly highly educated, experienced, middle-aged, and married males.

Instruments

Job Resources: three types of job resources were assessed in each sample, i.e., job control, feedback, and task variety. These concepts were operationalized slightly differently in both samples.

Job Control. Sample 1: Task control and timing control were used as comprehensive and specific indicators of job control specially indicated for work with new technologies (Jackson, Wall, Martin & Davis, 1993). The scale included 5 items; example items are: *“I have the discretion to decide what tasks I will do at my workday”* (task control), *“I have the discretion to decide when to start a task”* (timing control). Participants responded on a 5-point scale which ranged from 1 (not at all) to 5 (a great deal). The internal consistence (Cronbach’s α) was .89.

Sample 2: A brief 3-item version of the autonomy scale of the Dutch Questionnaire on the Experience and Evaluation of Work (Van Veldhoven & Meijman, 1994; Van Veldhoven, De Jonge, Broersen, Kompier & Meijman, 2002) was used to assess job control (e.g. *“Can you decide how to carry out your tasks”*). Participants responded on a 5-point scale which ranged from 1 (never) to 5 (always). The internal consistence (Cronbach’s α) was .78.

Feedback. Sample 1: Feedback was measured with the 4-items scale of Hackman and Oldham (1975). This scale assesses feedback from the job itself (e.g., *“Doing the job itself provides me with information about my work performance”*), as well as feedback from others (e.g., *“The supervisors and co-workers on this job almost*

never give me any feedback about how well I am doing in my job” (reversed).

Participants responded on a 7-point scale that ranged from 1 (totally disagree) to 7 (totally agree). Cronbach’s $\alpha = .65$.

Sample 2: A brief 3-item version of the feedback scale of the Dutch Questionnaire on the Experience and Evaluation of Work (Van Veldhoven & Meijman, 1994; Van Veldhoven, De Jonge, Broersen, Kompier & Meijman, 2002) was used (e.g. “*I receive sufficient information about the results of my work*”). Participants responded on a 5-point scale which ranged from 1 (never) to 5 (always). The internal consistence (Cronbach’s α) was .83.

Variety. Sample 1: Variety was measured with a 3-item self-constructed scale that assesses the degree to which the job includes different kinds of tasks, activities and duties (e.g., “*My job is varied*”). Participants responded on a 5-point scale that ranged from 1 (not at all) to 5 (in great deal). Cronbach’s $\alpha = .75$

Sample 2: The 6-item task variety scale of the Dutch Questionnaire on the Experience and Evaluation of Work (VBBA; Van Veldhoven & Meijman, 1994; Van Veldhoven, De Jonge, Broersen, Kompier & Meijman, 2002) was used (e.g. “*Do you need creativity in your job?*”). Participants responded on a 5-point scale which ranged from 1 (never) to 5 (always). Cronbach’s $\alpha = .80$.

Work engagement was assessed in both samples with the Utrecht Work Engagement Scale (UWES: Schaufeli et al., 2002b), including: (1) Vigor (VI) (5 items; e.g., “*At my work, I feel bursting with energy*”). Cronbach’s $\alpha = .76$ in Spain and .81 in The Netherlands. (2) Dedication (DE) (5 items; e.g., “*My job inspires me*”). Cronbach’s $\alpha = .88$ in Spain and .91 in The Netherlands. Participants responded on a 7-point scale that ranged from 1

(never) to 7 (always). Previous research among university students suggested cross-national validity of the UWES across Spain, The Netherlands and Portugal (Schaufeli, et al. 2002a).

Proactive behavior.

Sample 1: A self-constructed 3-item scale was used referring to employee's behavior in a changing technological environment. Participants responded on a 5-point scale that ranged from 1 (never) to 5 (always) how they managed with organizational changes: *During technological changes in my company.....*: (1) *"After attaining a goal, I look for another, even more challenging goal"*; (2) *"When things are wrong, I search for a solution immediately"*; and (3) *"I take risks because I feel fascinated because job challenges"*.

Cronbach's $\alpha = .71$.

Sample 2: The 7-item 'personal initiative' scale as developed by Frese, et al. (1997) was used to assess proactivity. An example item is *"Whenever something goes wrong, I search for a solution immediately"*. The personal initiative scale is available in Dutch, German and English (Fay, 1998). Participants responded on a 5-point scale which ranged from 1 (never) to 5 (always). Cronbach's $\alpha = .80$.

Data analyses

Structural Equation Modelling: SEM methods as implemented by the AMOS program (Arbuckle & Wothke, 1999) were used to test three competitive models: the full research mediating model (M1), the partial mediating model (M2), and an alternative model (M3) that assumes that proactive behavior is mediating between job resources and engagement. Before performing SEM, the frequency distributions of the scales were checked for normality and multivariate outliers were removed. First, M1, M2 and M3 were tested in each sample separately (Spain and The Netherlands) and next a multiple group analyses (Byrne, 2001; pp. 173-199) was performed in order to assess invariance across both national samples.

Fit indices: Maximum likelihood estimation methods were used and the input for each analysis was the covariance matrix of the items. The goodness-of-fit of the models was evaluated using absolute and relative indices. The absolute goodness-of-fit indices calculated were (cf. Jöreskog & Sörbom, 1986): (1) the χ^2 goodness-of-fit statistic; (2) the Root Mean Square Error of Approximation (RMSEA); (3) the Goodness of Fit Index (GFI); (4) the Adjusted Goodness of Fit Index (AGFI). Non-significant values of χ^2 indicate that the hypothesized model fits the data. However, χ^2 is sensitive to sample size, so that the probability of rejecting a hypothesized model increases when sample size increases. To overcome this problem, the computation of relative goodness-of-fit indices is strongly recommended (Bentler, 1990). Values of RMSEA smaller than .08 indicate an acceptable fit and values greater than 0.1 should lead to model rejection (Cudeck & Brown, 1993). In contrast, the distribution of the GFI and the AGFI is unknown, so that no statistical test or critical value is available (Jöreskog & Sörbom, 1986).

The relative goodness-of-fit indices computed were (cf. Marsh, Balla & Hau, 1996): (1) Non-Normed Fit Index (NNFI) – also called the Tucker Lewis Index; (2) Incremental Fit Index (IFI); (3) Comparative Fit Index (CFI). The latter is a population measure of model misspecification that is particularly recommended for model comparison purposes (Goffin, 1993). For all three relative fit-indices, as a rule of thumb, values greater than .90 are considered as indicating a good fit (Hoyle, 1995).

Results

Descriptive analyses

First, descriptive analyses were performed and internal consistencies were computed for the six scales in each sample separately (see Table 1). With one exception,

feedback in the Spanish sample, values of α meet the criterion of .70 (Nunnally & Bernstein, 1994). Since the α -value for feedback approaches the critical value of .70 it is considered sufficient as well. As can be seen from Table 1, in both samples, job control, feedback and variety are positively related to both engagement dimensions, as well as to proactive behavior. Except for the correlation between variety and feedback ($r = 0.09$; $p = 0.06$), and between control and proactive behavior ($r = 0.08$; $p = 0.09$) in the Spanish sample, all correlations are significant. Specifically, the interrelations among both engagement dimensions are rather strong, thus confirming the assumption that they refer to the same underlying motivational construct. Finally, the fact that the correlations in both samples between job resources (i.e. job control, feedback and variety) and engagement (i.e. vigor and dedication) are significant seems to agree with Hypothesis 1.

INSERT TABLE 1 ABOUT HERE

Testing the research model

According to Baron and Kenny (1986) and Judd and Kenny (1981), when a mediational model involves latent constructs, structural equation modeling is to be preferred as data analysis strategy. In order to test Hypotheses 2 about the mediating role of engagement, we fitted our research model (M1), as depicted in Figure 1, to the data of both samples separately. We did so in four consecutive as proposed by these authors mentioned above. Three latent variables were used in our model. (1) 'Job resources' included three indicators (i.e., job control, feedback, and variety), (2) 'Engagement' included two indicators (i.e., vigor and dedication), and (3) 'Proactive behavior' included a single

indicator (the average total score of the corresponding scale) which incorporates information on the reliability of the scale (i.e. the error variance was estimated by using the formula $((1-\alpha) * \sigma^2)$).

Results, as depicted in Table 2, show that the research model fits the data well, with all fit indices meeting their respective criteria, and with all path coefficients being significant ($t > 1.96$). These results suggest that engagement mediates the relationship between job resources and proactive behavior in both samples. Hence, Hypotheses 2 is supported. The significant positive path coefficient linking job resources with work engagement is in accordance with Hypothesis 1. The full mediation model explains on average 50.5% of variance in engagement (46% in Spanish and 55% in the Dutch sample) and an average of 36.5% of variance in proactive behavior (37% in Spanish and 36% in the Dutch sample).

However, in order to test whether the impact of job resources on proactive behavior is fully or partially mediated by engagement, additional analyses were carried out. Three competitive models were fitted to the data in both samples separately. The full mediation research model (M1) was compared with a partial mediation model (M2) that assumes an additional direct path from job resources to proactive behavior. As can be seen from Table 2, in both samples the fit of M2 is not superior to that of M1. Besides, the direct path from job resources to proactive behavior lacks significance ($t = 1.13$ in the Spanish sample and $t = 0.73$ in the Dutch sample). Hence, as assumed in Hypotheses 2, it is concluded that engagement fully mediates the relationship between job resources and proactive behavior among Spanish and Dutch employees.

Next, in order to rule out the possibility of proactive behavior mediating between job resources and engagement, the corresponding alternative model (M3) was fitted to the data of both samples separately. As can be seen from Table 3, in both samples the fit of M3 was inferior to that of M1. Hence, it is concluded that proactive behavior does not play a mediating role.

INSERT TABLE 2 ABOUT HERE

Finally, in order to test Hypotheses 3 about the invariance of the model across both national samples, a multiple-group analysis was carried out including both samples simultaneously. This method provides more efficient parameter estimations than either of the two single-group models (Arbuckle, 1997). Besides, using a multiple-group analysis the equivalence of path coefficients across samples can be assessed. As expected from the previous analyses, M1 provides a good fit to the data across both samples, with all fit indices meeting their corresponding critical values (see Table 3). However, the fit deteriorated significantly when all path coefficients were constrained to be equal in both samples (M1_c). This means that, although the underlying structure of latent and manifest variables is similar in both samples, the sizes of the path coefficients differ.

Next, in order to assess the invariance of M1 in greater detail, two additional models were fitted to the data: (1) M1_{st} that assumes only the structural paths between resources and engagement and between engagement and proactivity to be invariant, and (2) M1_{fa} that assumes only paths running from latent factors to manifest variables (i.e. factor loadings) to be invariant. As can be seen from Table 3, the fit of M1_{fa} is inferior compared to that of M1, whereas that of M1_{st} is not. This means that the structural paths between the

three latent constructs are invariant across both samples, whereas the factor loadings differ systematically.

INSERT TABLE 3 ABOUT HERE

In the final step, an iterative process was used as recommended by Byrne (2001) in order to assess the invariance of each factor loading separately (see also Schaufeli, Salanova et al. 2002). That is, the invariance of each factor loading was assessed individually by comparing the fit of the model in which a particular loading was constrained to be equal across both samples with that of the previous model in which this was not the case. When the fit did not deteriorate, this constrained factor loading was included in the next model in which another constrained estimate was added, and so on.

INSERT FIGURE 2 ABOUT HERE

The final model (M_{1f}) showed that the structural paths between the latent variables as well as the factor loading of feedback on job resources proved to be invariant across both samples (see Figure 2). Hence, Hypotheses 3 that assumes the invariance of the mediation model is partly supported.

Discussion

The current study researched the mediating role played by work engagement in the relationship between job resources (i.e. job control, feedback and variety) and proactive behavior (see Figure 1). It was found that, as hypothesized, work engagement fully

mediates the impact of job resources on proactive behavior at work: that is, an increase in job resources is related to an increase in work engagement, which, in its turn, is positively related to proactive work behavior. No direct relation between job resources and proactive behavior was observed, and an alternative model that assumes a mediating role of proactive behavior between job resources and work engagement, did not fit the data well. This means that Hypothesis 1 assuming a positive relationship between job resources and work engagement, as well Hypothesis 2, assuming full mediation of work engagement, are confirmed.

The robustness of the research model is illustrated by the fact that the model fits about equally well in two different occupational samples (ICT workers and telecom managers) that originate from two different countries (Spain and The Netherlands, respectively). Moreover, the structural paths running from job resources to engagement and from engagement to proactive behavior are equally strong in both samples. Also, the fact that in both samples slightly different measures of resources and proactive behaviour were used strengthens our findings. Hence, despite the fact that proactive behavior refers to slightly different work behaviors in both samples (i.e., coping with technological demands for ICT workers and performing managerial tasks in a changing business environment for managers) the motivational mechanism seems to be similar across both work-settings and countries. Although the robustness of the model itself does neither explain its usefulness nor its contribution it does add to the confidence that we have in the generalizability of the results. In jobs where new technologies are continuously implemented (ICT employees) as well as in modern, rapidly changing organizations (where telecom managers are employed) proactive behavior is essential in order to cope effectively with change. In addition, our

results exemplify the crucial role of job resources that foster intrinsic motivation (i.e., vigor and dedication) and – indirectly – proactive behavior at work,.

Theoretical Implications

Our results agree with recent research about how job resources increase intrinsic motivation and – in their turn – increase specific positive behaviors, such as proactive behavior at work (Crant, 2000; Houkes et al., 2001; Parker, 2000) or job performance (Salanova, Agut & Peiró, 2005). But also, our findings suggest that instead of directly affecting proactive behavior job resources indirectly affect proactivity via increasing levels of work engagement. In fact, on a more general level this agrees with Hackman and Oldham's (1980) Job Characteristics Theory that assumes that so-called critical psychological states (i.e., meaningfulness, responsibility, and knowledge of the results) mediate between job characteristics (i.e., resources such as variety, task identity, task significance, autonomy and feedback) and outcomes (i.e., motivated proactive behavior). In our study, work engagement seems to play a role analogously to critical psychological states. In a similar vein, in their comprehensive theoretical model of personal initiative, Frese and Fay (2001) hypothesized that job resources ('environmental supports' such as job control, job complexity, and feedback) have an indirect impact on personal initiatives through so-called 'orientations' (i.e., self-efficacy, control appraisals, handling errors, change orientation, and active coping). In other words, our results confirm that similar job resources that are included in the models of Hackman and Oldham (1980) and of Frese and Fay (2001) are indirectly related to proactive behavior. More specifically, our measures of job control and variety are quite similar to those termed 'autonomy' and 'complexity' in both other models, respectively.

On the other hand, our findings also go beyond both models, because in their cases the intermediate psychological states or orientations are primarily cognitive in nature (e.g. knowledge of the results, self-efficacy, control appraisals), whereas engagement is also an affective state. Hence, it appears that job resources not only affect employee's cognitions, but also his or her feelings about the job, which in turn seems to spur proactive behavior. The fact that positive affects, such as engagement seems to lead to proactive behavior in employees agrees with the so-called 'Broaden-and-Build' theory of positive emotions (Fredrickson, 2001). This theory posits that the experience of positive emotions broadens thought-action repertoires and builds enduring personal resources. Although Fredrickson's theory is about emotions such as joy, interest, and contentment, it can be speculated that work engagement, that includes enthusiasm, pride, inspiration and challenge might have a similar effect in broadening habitual modes of thinking and acting, and thus increasing the likelihood of displaying proactive work behavior.

Practical Implications

Our findings suggest that rather than considering proactivity as a personal disposition that is relatively stable across time and across work situations (e.g., Bateman & Crant, 1993, Parker, 2000), it may also be considered as specific work behavior (i.e., in terms personal initiative) that is related to perceived levels of job resources. Practically speaking in terms of Human Resources Management, the former view calls for recruitment and selection, whereas in the latter view proactivity may be fostered by a appropriate job (re)design; that is, particularly by increasing or supplying additional job resources.

Our findings also suggest that job resources do not directly impact on proactivity but indirectly through increased levels of work engagement. The finding that engagement is directly related to proactive behavior offers the possibility to increase engagement through

other means than through increasing job resources, in order to boost proactive work behavior. For instance Salanova, Bresó and Schaufeli (2005) showed that engagement may be increased by enhancing levels of efficacy beliefs in two samples of Spanish and Dutch university students, respectively. An upward positive spiral was found in which past academic success reinforces efficacy beliefs and engagement, resulting in more positive future efficacy beliefs. In this way, efficacy beliefs may boost engagement levels' among students. Hence, a training program aimed at increasing levels of efficacy might result in increasing employees' work engagement as well.

Limitations and further research

First, our results may partly be influenced by common method variance because self-report questionnaires were used to measure job resources, work engagement and proactive behavior. Although most studies in the field exclusively rely on self-reports, job resources might also be assessed by observer ratings that are based on a thorough job analysis (e.g. Demerouti, et al., 2001), whereas for the measurement of personal initiative an interview based measure exists (Fay, 1998; Frese, et al, 1997). Hence, our research model could be tested in future using expert ratings and interviews to assess job resources and proactive behavior, respectively. It should be noted in favour of the present study, however, that correlations between self-reported and observed job resources (i.e., feedback and job control; Demerouti, et al., 2001) and between a personal initiative questionnaire and an interview (Fay & Frese, 2001) are consistently positive, thus confirming their congruent validity.

Second, our study used a cross-sectional design, which means that the arrows that are depicted in Figures 1-2 should not be interpreted as causal relations but as associations that might suggest a certain causal ordering that should be confirmed in future longitudinal

research. The fact that the alternative model that assumed that instead of engagement, proactivity would play a mediating role, showed a poor fit to the data, suggested that this alternative causal ordering is less likely. However, only longitudinal research can adequately disentangle cause and effect. Such longitudinal research could also uncover reciprocal causal relationships, particularly between proactive work behavior and job resources. According to the Conservation of Resources (COR-) Theory (Hobfoll & Shirom, 2000), employees are motivated to obtain and accumulate resources in order to effectively deal with future stressors and strains. Viewed from this perspective, our conceptualisation of proactivity can be seen as a way of proactive coping as described by COR-theory: by acting proactively employees increase their job resources such as control, variety and feedback, which makes them less vulnerable in cases they find themselves under stress (Westman, Hobfoll, Chen, Davidson & Laski, 2005). Moreover, these increased resources would enhance proactive behavior (via engagement), thus setting a so-called ‘gain spiral’ in motion leading to a progressive accumulation of resources (Hobfoll & Shirom, 2000). In other words, future longitudinal research should investigate the dynamic, reciprocal nature of job resources, work engagement, and proactive behavior and thus expand the results of our cross-sectional study.

Final note

The current research contributes to the ongoing debate about the motivational potential of job resources. In accordance with previous models, such as Hackman and Oldham’s (1980) Job Characteristics Theory, an intermediate psychological state was found to play a mediating role between job resources and a specific type of work behaviour (i.e., proactivity). However, unlike in previous models, this psychological state – work engagement – is not cognitive but affective and motivational in nature.

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Table 1

Means (M), Standard Deviations (SD), Correlations (r) and internal consistencies (Cronbach's α) of the study variables) in the Spanish (n=386) and the Dutch sample (n=338).

	Spain		NL							
	M	SD	M	SD	1	2	3	4	5	6
1. Control	3.51	0.99	3.94	.56	(.89/.78)	.33***	.57***	.37***	.48***	.31***
2. Feedback	4.65	.93	3.83	.72	.18***	(.65/.83)	.49***	.39***	.45***	.23***
3. Variety	3.88	.62	3.60	.75	.23***	.09#	(.75/.80)	.38***	.58***	.28***
4. Vigor	4.01	.99	4.25	.73	.12*	.17***	.20***	(.76/.81)	.72***	.58***
5. Dedication	3.65	1.24	4.38	.87	.22***	.28***	.37***	.61***	(.88/.91)	.40***
6. Proactive B.	3.68	.80	3.73	.54	.08	.16***	.15**	.38***	.47***	(.71/.80)

Note. Correlations for the Dutch employees below the diagonal. Cronbach's α for Spanish/Dutch sample on the diagonal. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 2

Model fit in the Spanish (n=386) and the Dutch sample (n=338)

		χ^2	df	p	GFI	AGFI	RMSEA	NFI	IFI	CFI
Spain	M1	18.833	8	.01	.98	.95	.05	.95	.97	.97
	M2	17.121	7	.01	.98	.95	.06	.95	.97	.97
	M3	50.333	8	.00	.95	.89	.11	.86	.88	.88
Netherlands	M1	84.373	8	.00	.92	.80	.16	.90	.90	.90
	M2	83.859	7	.00	.92	.78	.18	.89	.90	.90
	M3	143.677	8	.00	.89	.71	.22	.82	.83	.83

Note. χ^2 = Chi-square; df=degrees of freedom; GFI=Goodness-of-Fit Index; AGFI=Adjusted Goodness-of-Fit Index; RMSEA=Root Mean Square Error of Approximation; NFI= Normed Fit Index; IFI = Incremental Fit Index and CFI=Comparative Fit Index. M1 = Research full mediation model. M2= Partial mediation model. M3 = Alternative model.

Table 3

Model fit, multiple group analyses including the Spanish (n=386) and the Dutch samples (n=338)

	χ^2	df	p	GFI	AGFI	RMSEA	NFI	IFI	CFI	$\Delta\chi^2$	Δdf
M1	103.219	16	.00	.91	.88	.08	.91	.92	.92		
M1 _c	136.831	20	.00	.94	.87	.09	.88	.90	.89	M1 _c -M1= 33.61***	4
M1 _{st}	105.956	18	.00	.95	.89	.08	.91	.92	.92	M1 _{st} -M1=2.73	2
M1 _{fa}	121.797	18	.00	.94	.87	.09	.89	.91	.91	M1 _{fa} -M1=18.481***	2
M1 _{fi}	106.366	19	.00	.95	.90	.08	.91	.92	.92	M1 _{fi} -M1 =3.147	3

Note. χ^2 = Chi-square; df=degrees of freedom; GFI=Goodness-of-Fit Index; AGFI=Adjusted Goodness-of-Fit Index; NNFI= Non-Normed Fit Index; IFI = Incremental Fit Index; CFI=Comparative Fit Index; RMSEA=Root Mean Square Error of Approximation. *** p < .001. M1= Research model (freely estimated); M1_c = Fully constrained model. M1_{st} = Constrained structural paths; M1_{fa} = Constrained latent factors paths; M1_{fi} = Final model.

Figure Caption:

Figure 1: The research model

Figure 2: The final model (standardized path coefficients). Results of the multigroup analysis (Spain/The Netherlands)



